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Docket No: ST01015USU (133-US-U1)
Serial No.: 10/051,726

REMARKS

STATUS SUMMARY

Claims 1-10 are pending in the present application. The Examiner has rejected claims 1-10 under 35 U.S.C. § 103(a). In response, Applicants have amended claims 1 and 6 and are traversing the rejections of claims 1-10 under 35 U.S.C. § 103(a). New claims 11 and 12 are being submitted and the specification has been amended to remedy an informality.

CLAIM AMENDMENTS/NEW AMENDMENTS

Amendments have been made to claims 1 and 6 to improve the clarity of the claims. No new matter has been added by these Amendments. Additionally, Applicants reserve the right to present the amended claims in their original form in one or more continuation applications.

New claims 11 and 12 have been added. Claims 11 and 12 recite features believed to be fully supported by the application as originally filed, and accordingly no new matter has been added. Support for these amendments may be found, for example, at page 9, lines 6-9, FIG. 3, and elsewhere throughout the specification. Accordingly, Applicants respectfully request entry and allowance of newly-added claims 11 and 12.

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RESPONSE TO OBJECTIONS TO SPECIFICATION

The Examiner has objected to an informality in the drawings in that the reference character 212 is not found in FIG. 2 although it is mentioned in an Amendment to Specification filed November 21, 2008. Applicants have submitted herewith an Amendment to Specification wherein the specification, specifically, page 8, lines 1-4, is amended to change the reference number from "212" to "112." With this amendment, the reference numerals in FIG. 2 are now consistent with the specification and amendments to the drawings are not required. No new matter has been added by this amendment.

In view of the foregoing, Applicants respectfully submit that the objection to the drawings/specification has now been overcome, and therefore request that the Examiner's objection to the drawings/specification be withdrawn at this time.

CLAIM REJECTIONS - 35 U.S.C. § 103(a)

Claims 1-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art ("AAPA"), *i.e.*, FIG. 1, in view of U.S. Patent No. 4,788,450 to *Wagner* ("*Wagner*"). Applicants respectfully traverse this rejection because the AAPA and the cited reference in combination fail to teach or suggest all the features or elements recited in each of the rejected claims, and moreover, it is not obvious to combine the AAPA with *Wagner* because *Wagner* teaches away from the AAPA.

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Not all claim limitations are taught or suggested by the AAPA and the cited art

The AAPA (FIG. 1) is a schematic illustration of a dual Schottky diode device that automatically switches the voltage supply to the source with the highest potential. This device comprises two diodes, two power supplies (main and backup), and a device to be powered. (*Specification*, page 6, lines 19-23).

The Examiner asserts that as to claims 1 and 6, the AAPA teaches "all of the claimed features except for the claimed FET coupled to the secondary power source and the claimed inverter coupled to a gate of the FET (see Figure 1)." The Examiner further asserts as follows:

Wagner discloses an apparatus for providing power from a secondary power source comprising a FET (310) coupled to the secondary power source (350) and to a device to be powered (316); and an inverter (381), coupled to a gate of the FET (310), wherein the inverter (381) maintains the FET (310) in a pinched-off condition and preventing a current flow from the secondary power source (350) when the primary power source (306) is available (see column 5, lines 1-3; column 5, line 66 - column 6, line 26; and Figure 3). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have modified admission by connecting the FET (310) of Wagner between the first diode and the secondary power source, and connecting the inverter (381) of Wagner between the FET (310) and the switch (114) of admission, with its control signal coupled directly to the primary power source, in order to completely isolate the secondary source when the primary source is present, thus preventing the secondary source from unnecessary depletion.

The FET (310) of *Wagner*, however, is not an identical element to the claimed FET of claims 1 and 6. In general, the cited art, *Wagner*, "relates to a solid-state power switch of the single-pole, multiple-throw type using field-effect transistors." (Col. 1: lines 7-9.) FIG. 3 is a simplified schematic diagram of a load connected by way of metal-oxide semiconductor ("MOS") field-effect transistors ("EFT") to primary and backup

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power supplies. (Col. 2: lines 66-68.) In FIG. 3, two P-channel field-effect transistors 310 and 360, each including a gate, source, and drain, have their sources connected together at a junction 315. (Col. 5: lines 1-3.)

FIG. 1a illustrates a P-channel MOS field-effect transistor 10 that includes a gate (G), source (S), and drain (D) electrodes, and a PN or junction diode 12 with its cathode connected to the source and its anode connected to the drain of field-effect transistor 10. (Col. 3: lines 20-26.) FIG. 2a is a schematic diagram similar to FIG. 1a, but in which the source and the drain connections of field-effect transistor 10 are reversed. (Col. 3: lines 64-66.) In FIG. 3, two P-channel field-effect transistors 310 and 360, each including a gate, drain, and source, have their sources connected together at a junction 315. (Col. 5: lines 1-3.) Field-effect transistors 310 and 360 each have an inherent diode 312 and 362, respectively. In general, the arrangement of FIG. 3 may be seen to include a diode-OR connection formed from the inherent diodes of two P-channel field-effect transistors, in which the diodes are shorted under control of a control circuit to increase the useful load by enabling the channel with one of the inherent diodes. (Col. 6: lines 27-33.) Specifically, when the voltage at the primary power supply terminal 364 exceeds 4.5 volts, the voltage at junction 375 exceeds the voltage at junction 374, and comparator 371 produces a voltage at junction 380 and at gate G of field-effect transistor 360 which is near ground. Under these conditions, field-effect transistor 360 conducts in a field-effect operating mode, thereby short-circuiting its inherent diode 362. (Col. 5: line 66, through col. 6: line 6.)

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Obviously, the FET of *Wagner*, because it includes an inherent diode, is not the same as the single FET of claims 1 and 6. Moreover, the switch of *Wagner* requires two FETs while the invention of claims 1 and 6 each have a single FET. Additionally, the source of the single FET of the invention of claim 1 is coupled to the secondary power source, while in FIG. 3 of *Wagner*, the drain of FET 310 is coupled to the low power source, battery 350. In claim 6 of the invention, the source of the single FET is coupled to a second diode that is coupled to the secondary power source, which is not found in either of FET 310 or FET 360 of *Wagner*.

If the source and drain connections of FETs 310 and 360 are reversed, as shown in FIGs. 2a and 2b (col. 3: lines 64-66), the result is the same in that, as to claim 1, the diode 312 is coupled to the drain of FET 310 but not to the load represented by resistor 316. As for claim 6, neither FET 310 and nor FET 360 has a drain coupled to the primary power supply 350.

In summary, the cathodes and anodes of both diodes 312 and 362 of *Wagner* are coupled to the sources and drains of a FET or vice versa, which precludes *Wagner* from teaching or suggesting all of the elements of claims 1 and 6 for at least two reasons. First, there is only a single FET in claims 1 and 6. Second, in claim 1, one of the two diodes is not connected to a FET at all, and in claim 6, each of the two diodes has only a single connection to a FET. Again, it is clear that all of the claimed limitations of independent claims 1 and 6 are not taught or suggested by the combination of the AAPA and *Wagner*.

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As for the Examiner's Response to Arguments (pages 5-6 of the Office Action), the relative potentials of the first and second power sources is no longer an issue because claims 1 and 6 have been amended to delete the phrase "where the secondary power source has a lower potential than a primary power source." Support for these amendments is found at page 8, lines 7-11. Thus, in general, the current flow and the power drain from the backup power supply are prevented whenever there is a primary power supply available. This is the purpose of the claimed invention as stated at page 2, lines 21-23, page 4, lines 14-16, and elsewhere throughout the specification.

In contrast, *Wagner*, in general, "a diode-OR combination formed from the inherent diodes of two P-channel field-effect transistors, in which the diodes are shorted under control of the control circuit to increase the useful load voltage by enabling the channel in parallel with one of the inherent diodes." (Col. 6: lines 27-33.) As noted earlier, when the voltage at the primary power supply terminal 364 exceeds 4.5 volts, the voltage at junction 375 exceeds the voltage at junction 374, and comparator 371 produces a voltage at junction 380 and at gate G of field-effect transistor 360 which is near ground. Under these conditions, field-effect transistor 360 conducts in a field-effect operating mode, thereby short-circuiting its inherent diode 362. (Col. 5: line 66, through col. 6: line 6.)

If the AC power applied to primary power supply 300 fails, or if the voltage at the primary power supply terminal 364 falls below 4.5 volts, comparator 371 switches and produces a voltage that disables the field-effect conduction of field-effect transistor 310, causing inherent diode 362 of FET 360 to become biased or unbiased. The power is then

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supplied from backup power supply 350 by way of the conducting source-to-drain channel of FET 310. (Col. 6: lines 11-26.)

From this it can readily be seen that the purpose of the primary power switch of *Wagner* is an uninterruptable power supply arrangement that includes primary and backup voltage sources (*see* Abstract) and not an apparatus wherein the backup power source is not utilized whenever the primary power source is available. Therefore, it is not intended that *Wagner* perform the same functions as the invention of claims 1 and 6, nor are the limitations of claims 1 and 6 taught or suggested by *Wagner*.

Independent claims 1 and 6 being in condition for allowance, dependent claims 2-5 and 7-10 that depend directly or indirectly from allowable independent claims 1 and 6, respectively, are also in condition for allowance for at least the same reasons.

Suggestion or motivation to combine

Wagner describes a diode-OR circuit as a circuit that includes a pair of diodes, each with an electrode connected by a common bus to the load or circuit to be continuously energized, and with the other electrode of one of the diodes connected to a separate primary voltage source, and with the other electrode of the other one of the diodes connected to the backup voltage source battery. (Col. 1: lines 29-35.) As for the AAAP (FIG. 1), this is a dual Schottky diode device comprising diode D1 102 and diode D2 104 with their cathodes connected to a common node 106, which is used to provide power to device 108. The main power supply V1 110 is connected to the anode of D1

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102 through switch 114, and voltage source V2 112 is connected to the anode of D2 104.

(Page 6, lines 19-23.)

Claims 1-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art (admission), *i.e.*, the dual Schottky diode device, in view of *Wagner*. In the pending final Office action, the Examiner states the basis for this rejection (at page 4) as follows:

Admission in view of *Wagner* do not disclose the relative potentials of the primary and secondary power sources; however, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have modified the system of admission in view of *Wagner* by selecting primary and secondary power sources wherein the secondary power source has a lower potential than the primary source, because selections of values of components and operational levels for an electronic device are engineering decisions based upon the system's intended use and the expected requirements of the other systems with which it will interface.

Based on the amendments to claim 1 and 6 referred to above, modification of the AAPA in view of *Wagner* "by selecting primary and secondary power sources wherein the secondary power source has a lower potential than the primary source" is no longer relevant to the claims at issue. As stated at page 4, lines 14-16, of the specification, an object of the invention is to turn off the backup power supply "whenever main power is on regardless of main power voltage."

In any case, there can be no suggestion or motivation combine *Wagner* with the AAPA to supply any missing limitations whatsoever because *Wagner* clearly teaches away from the AAPA. The reason for this is that *Wagner* discloses a diode-OR circuit as described above, and then discloses a backup power switch having FETs, inherent diodes,

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a control circuit, and other components "which minimizes these disadvantages" of a diode-OR circuit.

Based on the description of the dual Schottky diode device of FIG. 1, it is apparent that the dual Schottky diode device of FIG. 1, *i.e.*, the AAPA, and the diode-OR circuit of *Wagner* are essentially the same. Given the issuance of Patent No. 4,778,450, there can be no suggestion or motivation to combine *Wagner* with the diode-OR circuit of *Wagner*. Likewise, there can be no suggestion or motivation to combine *Wagner* with the dual Schottky diode device of FIG. 1 because the dual Schottky diode device of FIG. 1 and the diode-OR circuit of *Wagner* are essentially the same device. In other words, *Wagner* teaches away from the AAPA just as it does from the diode-OR circuit that is described in its background of the invention. Accordingly, there is no suggestion or motivation to combine *Wagner* with the AAPA because *Wagner* teaches away from the AAPA.

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CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited. However, if the Examiner believes that the Amendments and Remarks do not place the application in condition for allowance, Applicants respectfully request an Advisory Action.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Office Action.

Respectfully submitted,

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